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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Monte Bruce WILSON

Appln. No.: 09/830,187

Group Art Unit: 1751

Confirmation No.: 2958

Examiner: HARDEE, JOHN

Filed: June 25, 2001

For: STABLE COMPOSITIONS OF LIQUEFIED REFRIGERANT AND UV DYE

**APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

In accordance with the provisions of 37 C.F.R. § 1.192, Appellants submit the following:

**I. REAL PARTY IN INTEREST**

Based on information supplied by Appellant, and to the best of Appellants' legal representatives' knowledge, the real party in interest is the assignee, PROEM Pty. Ltd. of Australia.

**II. RELATED APPEALS AND INTERFERENCES**

Appellants, as well as Appellant's assigns and legal representatives are unaware of any appeals or interferences which will be directly affected by, or which will directly affect, or have a bearing on the Board's decision in the pending appeal.

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### **III. STATUS OF CLAIMS**

Claims 2, 3, 5 and 7-15 are currently pending. The Examiner finally rejected all of claims 2, 3, 5, 7, 11-13 and 15 in the Office Action dated November 26, 2002. The Examiner confirmed the final rejection of claims 2, 3, 5, 7, 11-13 and 15 in an Advisory Action dated April 2, 2003. Claims 8-10 have been allowed, and claim 14 is objected to but would be allowable, as indicated in the Advisory Action. The claims 2, 3, 5, 7, 11-13 and 15, as finally rejected, are set forth in the attached Appendix.

### **IV. STATUS OF AMENDMENTS**

Claims 2, 3, 5, 7, 11-13 and 15 as presented on appeal have been pending in the application since an amendment under 37 CFR 1.116, which was filed on March 26, 2003 and amended claims 2, 3, 5, 7, 8, 11 and 12. Claims 1, 4 and 6 were canceled in that amendment. In an Advisory Action dated April 2, 2003, the Amendment under Rule 116 was entered and claims 8-10 were indicated as being allowed, while claim 14 was objected to but was considered to be allowable. Claims 13-15 were newly added in a communication filed on October 9, 2002, which was entered. A preliminary amendment filed on April 23, 2001 and amending claims 3-7 and 11 was entered.

### **V. SUMMARY OF THE INVENTION**

The present invention concerns a "containerized refrigerant product" that is a combination of (1) a pressurized cylinder and contained therein (2) a highly stable "liquefied refrigerant composition," specifically comprising in combination (a) a liquid non-CFC refrigerant, (b) a UV fluorescent dye and (c) a solvent for predissolving the dye, where the solvent is (i) other than the refrigerant or (ii) a refrigeration system lubricant. Within the pressurized cylinder, the refrigerant, dye and solvent comprise a "uniformly homogenous composition in the liquid phase." With this combination, the dye is not released from the solvent when it is combined with a liquid refrigerant, as explained at page 11, thereby making the combination highly desirable for transportation and storage of the refrigerant product. The liquefied refrigerant composition may also contain a refrigerant lubricant.

## **VI. ISSUES**

This appeal presents three issues:

- Issue A:** Is independent claim 13, which is directed to a containerized refrigerant product, and its dependent claims 2,3, 5, 7, 11 and 15 anticipated by Henry (5,421,192) or Parekh (4,758,366) under 35 USC §102(b)?
- Issue B:** Is independent claim 13, which is directed to a containerized refrigerant product, and its dependent claims 2,3, 5, 7, 11 and 15 unpatentable over Henry (5,421,192) or Parekh (4,758,366) under 35 USC §103(a)?
- Issue C:** Is independent claim 13, which is directed to a containerized refrigerant product, and its dependent claims 2,3, 5, 7, 11 and 15 unpatentable over WO 98/54150 under 35 USC §103(a)?

## **VII. GROUPING OF CLAIMS**

Claims 2, 3, 5, 7, 11, 12, 13, and 15 are all directed to a containerized refrigerant product, comprising a combination of a pressurized cylinder and a liquefied refrigerant composition. All of these claims stand and fall together.

## **VIII. ARGUMENTS**

**ISSUE A -** Claims 2, 3, 5, 7, 11-13 and 15 Are Not Anticipated By Henry (5,421,192) or Parekh (4,758,366).

### **Henry**

Henry is generally concerned with the same subject matter as the present invention and teaches at col. 3, lines 23 that a fluorescent dye may be “solubilized by an appropriate solvent or solvent mixture to form a **concentrate** that is compatible with a lubricant, specifically, mineral oils, glycol and polyolesters. Henry teaches at col. 3, line 35 that in a practical embodiment, a **dye concentrate** must be “individually mixed” with an oil or lubricant. In the described experiments, the **dye concentrate** was mixed in three separate compositions with mineral oil, glycol and polyolester refrigeration lubricants. This mixture was then added to a CFC containing system.

There is no mention of a containerized refrigerant composition that includes a dye, solvent and CFC refrigerant.

Indeed, there is no recognition in Henry of the problem encountered by the Appellant. Specifically, Henry does not consider the problems with transportation or storage of a mixture of refrigerant components as detailed in the claims. Instead, Henry teaches the use of a dye concentrate as the preferred state for storage and transportation of the fluorescent dye, the concentrate being carried to a worksite for insertion into a refrigeration system with a lubricant. The mixture of CFC, dye and solvent is first assembled at the time of system servicing. Further, there is no teaching in Henry of the solution invented by the Appellant, specifically a dye, solvent and refrigerant comprising a uniformly homogenous composition in the liquid phase that is stored in a pressurized cylinder, as claimed.

#### **Parekh**

Parekh teaches a dye compound dissolved within either a polyhalogenated hydrocarbon refrigerant, a refrigeration oil or a mixture of the two (col. 1, lines 51-56). The patent teaches that a solution of fluorescent dye in solvent or oil, or a mixture of both, may be used (col. 3, lines 25-31). This broad teaching does not teach a containerized refrigerant product as claimed. Specifically, Parekh does not teach a uniformly homogenous composition of refrigerant, dye and solvent in the liquid phase within a pressurized storage cylinder. Indeed, the reference only teaches the preparation of a mixture of dye and refrigeration oil and its introduction into a refrigerant in a system (col. 4, line 56), the addition of a dye to a refrigerant and then its introduction into the refrigerant into the system (col. 4, line 62) or the introduction of a mixture of dye alone into the refrigeration system (col. 5, line 10). All of these methods involve a concurrent preparation of a mixture and introduction into a system. There is no teaching of a storage of a mixture of refrigerant, dye and solvent in a cylinder, as claimed, for later introduction into a system.

**There is No Anticipation Since There Is No Pressurized Storage Cylinder in the Cited Art**

The combination of refrigerant composition and pressurized storage cylinder provides a clear distinction from Henry and Parekh. Neither reference mentions a cylinder. In both references, the ingredients are mixed within the system. As to claims 2, 3, 5, 7, 11-13 and 15, the Examiner has not shown a cylinder or vessel that contains the mixture in a static form. Neither prior art reference recognizes the problem that the Applicant has solved. The existence of the claimed composite materials in an operating system is wholly different from a static or containerized state, as the movement of the materials and their change in phase during movement is a completely different environment from the one claimed.

Accordingly, Appellant respectfully submits that anticipation is improper since each limitation in the claims is not disclosed identically in either reference. Specifically, based upon the clear and unambiguous meaning of the term “pressurized cylinder,” the references do not show a “cylinder” or similar storage vessel that contains the mixture in a static form. In other words, there is no “containerized” refrigerant product, since that term would be understood by one skilled in the art as referring to a product in a static or storage mode. Indeed, the Examiner cannot refer to any structure in the references as a basis for anticipation because neither reference discloses details of a system or structure.

**ISSUE B - Claims 2, 3, 5, 7, 11-13 and 15 Are Patentable Over Henry (5,421,192) or Parekh (4,758,366).**

The Examiner appears to acknowledge that there is no “pressurized cylinder” as claimed, since he argues that the closed refrigerant system has a structure (condensation vessel) that is identical to or an equivalent of a pressurized cylinder. The Examiner’s first premise clearly is in error, as the conventional meaning of “pressurized cylinder” in the art and the meaning that is clear from the specification would not encompass an operational system or a condensation vessel in such system. A condensation vessel is not a storage “cylinder,” as that term is understood, and does not provide a containerization function, which is well known as a static storage function.

Nothing in the specification would lead one skilled in the art to a conclusion that the "pressurized cylinder" may be a part of an operational refrigeration system. Moreover, the second premise is equally without merit.

### **A Refrigerant System is Not Equivalent to a Pressurized Cylinder**

One of ordinary skill would not even equate a static or containerized mode as in the present invention with a dynamic or operative mode, even one where there is no fluid flow (i.e., system is dormant), because of several significant differences between a pressurized composition in a storage vessel or cylinder and the composition in the circulatory refrigeration system as a whole.

First, in the dormant circulatory refrigeration system, it is less likely than in the pressurized cylinder that the dye would separate from the refrigerant since the amount of lubricant mixed in the system would be tens, maybe hundreds, of times greater than that of the dye. The greater the amount of lubricant mixed with the dye and gas, the easier it is to create and to maintain a uniform mixture. However, the end product would not be commercially viable or saleable in a container for reasons of being too dilute. The Applicant's claims are directed to a containerized refrigerant product having a refrigerant composition (refrigerant, dye and solvent) that remains uniformly mixed in the pressurized vessel without the aid of a lubricant. In practical terms, the Applicant's refrigerant composition when stored in a pressurized storage vessel would have a small amount of lubricant in the composition; however, the amount is less than the combined amount of dye solid and solvent and not even close to the level found in a refrigeration system (tens to hundreds of times greater). Thus, the containerized refrigerant cannot be compared to a dormant circulatory system in determining patentability.

Second, when operating, the circulatory refrigerant system, lubricant may be as hot as 100°C. In the case of a mixture of dye, gas and oil, the higher the temperature the easier it is to maintain a uniform mixture. When the system is not operating, the oil dye and gas would all separate or be very poorly mixed. The Applicant's product, as claimed, is a substantially uniformly homogenous mixture. This feature would apply throughout a wide range of temperatures, even at temperatures well below 0°C.

Third, in operation, the level of agitation in a closed system ensures that any local concentration, which may develop when the system is stationary, will disappear when the circulation of refrigerant commences during the normal refrigeration cycle. The Applicant's containerized refrigerant product, as claimed, remains uniformly mixed regardless of the time it is left undisturbed or dormant.

**There is No Homogeneous Composition in a Cylinder**

Even if it were considered obvious to use a cylinder in this art, there is no teaching of a homogeneous composition in a pressurized cylinder, as claimed. Henry introduces the dye, lubricant and refrigerant separately into the system (col. 3, lines 35-64). Similarly, in Parekh, the dye composition solution, refrigeration oil and/or refrigerant are mixed separately (col. 4, lines 56-66), and then introduced into the system. There is no storage in a cylinder, particularly a homogeneous composition.

The feature of having a homogeneous composition is based upon the feature in the claim that the solvent is not a refrigerant lubricant. The specification states the inventor's belief that the chemical composition of the dye solvents must be such that those chemicals are not completely soluble in the refrigerant gas. Thus, if solvents such as (but not limited to) oils, intended for use with a certain refrigerant are used to carry the dye in solution, it was found that when the dye and solvent are mixed with the liquid refrigerant, the solvent and refrigerant become bonded and the dye is released from the solvent. Thus, a precipitate will be formed. Only those chemicals, which are not fully soluble with the chosen refrigerant, can be used to carry the dye without forming a precipitate. However, the solvent must be soluble to a limited extent. Thus, a homogeneous composition will result.

Thus, the basic claimed feature of the present invention is not taught in any embodiment of the prior art. The advantages of the present invention with regard to storage and transportation of a refrigerant product in a pressurized cylinder cannot be achieved.

**ISSUE C:     Claims 1-7, 11-13 and 15 Are Patentable Over WO98/54150**

Claims 1-7, 11-13 and 15 are patentable over WO98/54150 because this reference merely concerns a leak detection composition comprising a dye used in a refrigerant lubricant, such as R-134a lubricants, alone or in a mixture of two or more oils (pages 6-7). The reference teaches adding the dye compound to a solvent, such as a high boiling point organic solvent, to avoid separation (page 8). The reference teaches that the lubricant composition may be combined with a refrigerant in a usual manner and used in a refrigeration system (page 9). The several examples, however, do not disclose the creation of a homogenous mixture that is stored in a pressurized cylinder, as claimed. The deficiencies of Henry and Parekh would be applicable to this reference, as it does not disclose the problem or solution disclosed by the Appellant, or the invention as claimed. Indeed, there is no mention of a cylinder or even the structure of a system that could be a basis for asserting the obviousness of the present invention.

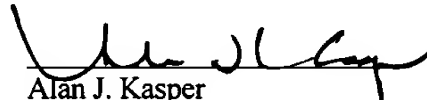
In sum, on the basis of the foregoing, Appellants respectfully submit that all of the pending claims are patentable over the prior art. There is no cylinder or vessel that contains the mixture in a static form. No prior art reference recognizes the problem that the Applicant has solved. The existence of the claimed composite materials in an operating system is wholly different from a static or containerized state, as the movement of the materials and their change in phase during movement is a completely different environment from the one claimed. One of ordinary skill would not equate a static or containerized mode with a dynamic or operative mode, even one where there is no current flow, because of several significant differences between a pressurized gas in a storage vessel or cylinder and the pressurized gas in the circulatory system as a whole.

The present Brief on Appeal is being filed in triplicate.



Appellants hereby petition for any extension of time that may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



Alan J. Kasper

Registration No. 25,426

SUGHRUE, MION, ZINN, MACPEAK  
& SEAS, PLLC  
2100 Pennsylvania Avenue, N.W.  
Washington, D.C. 20037-3202  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

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**APPENDIX**

**CLAIMS 2, 3, 5, 7, 11-13 and 15 ON APPEAL:**

2. A containerized refrigerant product as claimed in claim 13, further comprising a refrigeration system lubricant.

3. A containerized refrigerant product as claimed in claim 13, wherein the refrigerant is selected from HFC, HCFC, hydrocarbons, and derivatives and mixtures thereof.

5. A containerized refrigerant product as claimed in claim 2, wherein the refrigeration system lubricant is selected from hydrocarbons including natural or refined mineral oils, synthetic hydrocarbons, alkylbenzenes, polyalphaolefins, synthetic polyalkylene glycols and polyolester lubricants.

7. A containerized refrigerant product as claimed in claim 15, wherein the dye comprises from about 0.001 to about 5.0% by weight of the composition based on the weight of the dye per 100 grams of refrigerant.

11. A containerized refrigerant product as claimed in claim 13, suitable for operation in a system in a preselected mode including cooling, freezing, heating, ventilating and air conditioning.

12. A containerized refrigerant product as claimed in claim 11, wherein the air conditioning system is a motor vehicle air conditioning system.

13. A containerized refrigerant product comprising,  
a pressurized cylinder, and  
a liquefied refrigerant composition disposed in said cylinder, said composition comprising in combination a non-CFC refrigerant and a UV fluorescent dye pre-dissolved in a solvent for said dye, wherein said solvent is other than the refrigerant or a refrigeration system lubricant, whereby said refrigerant, dye and solvent comprise a uniformly homogenous composition in the liquid phase within said cylinder.

15. The containerized refrigerant product as set forth in claim 13, wherein:  
the dye is a naphthalimide fluorescent dye.